

Ordering number : ENN6977

P-Channel Silicon MOSFET



2SJ594

DC / DC Converter Applications

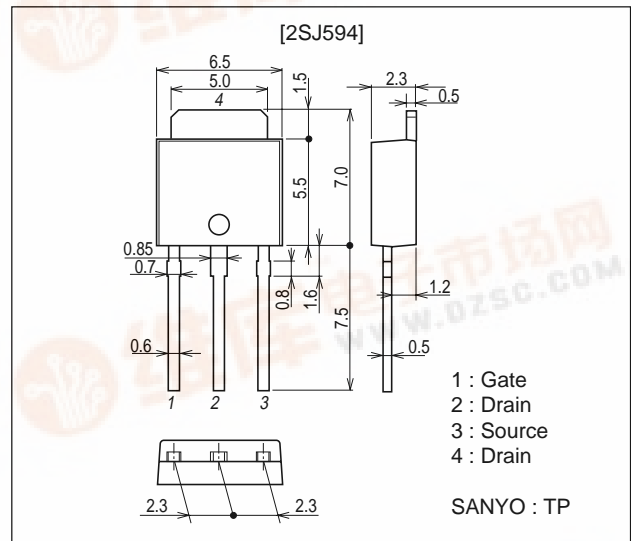
Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.

Package Dimensions

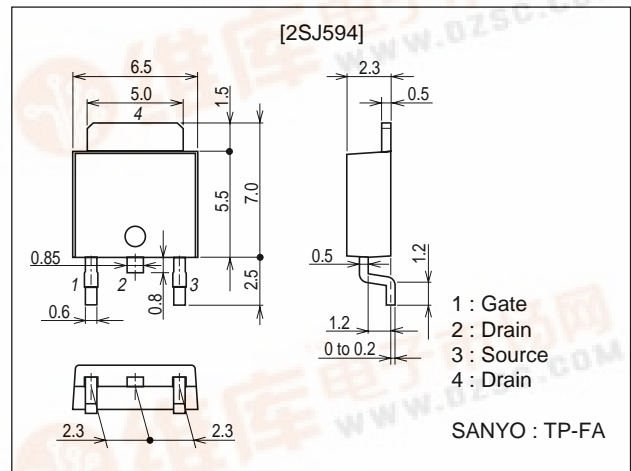
unit : mm

2083B



unit : mm

2092B



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Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

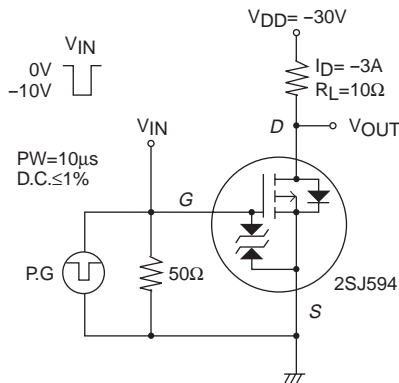
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		-60	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		-5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-20	A
Allowable Power Dissipation	P_D		1	W
		$T_c=25^\circ\text{C}$	15	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

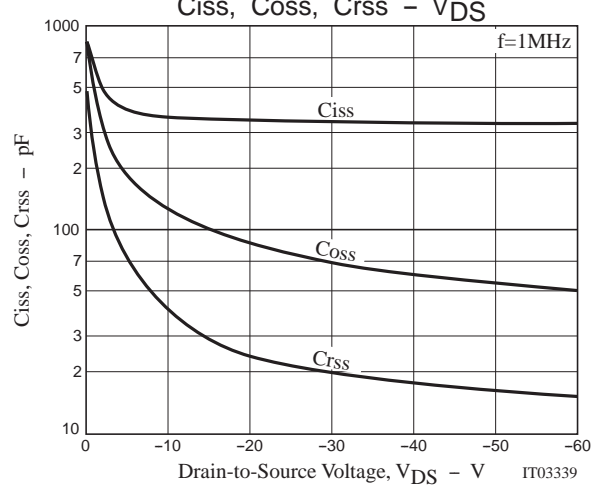
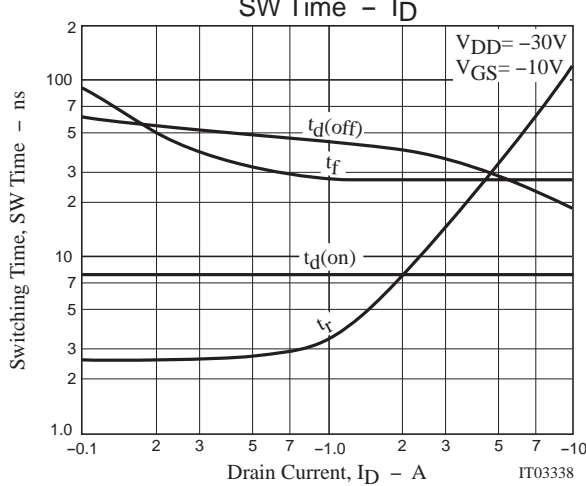
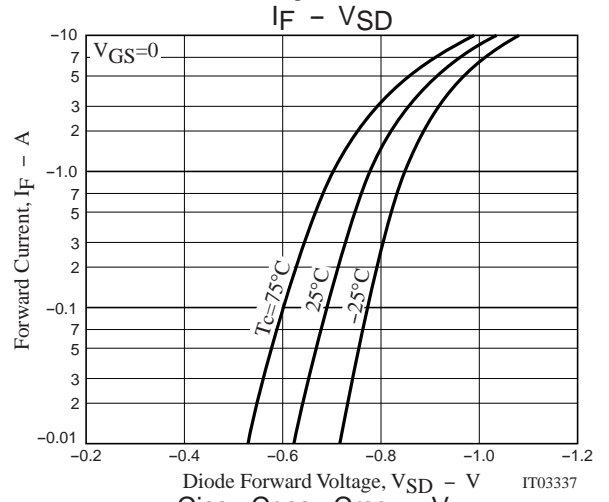
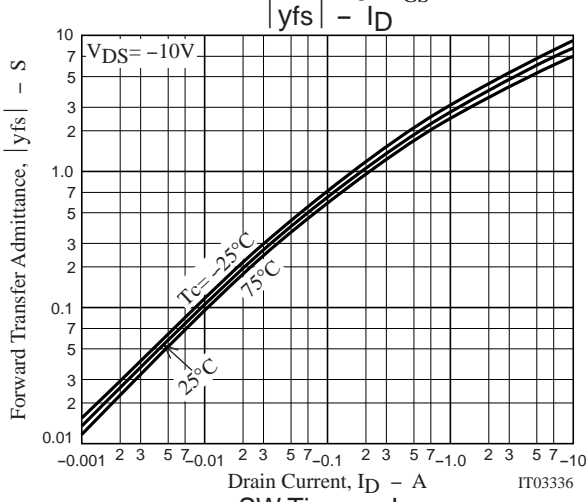
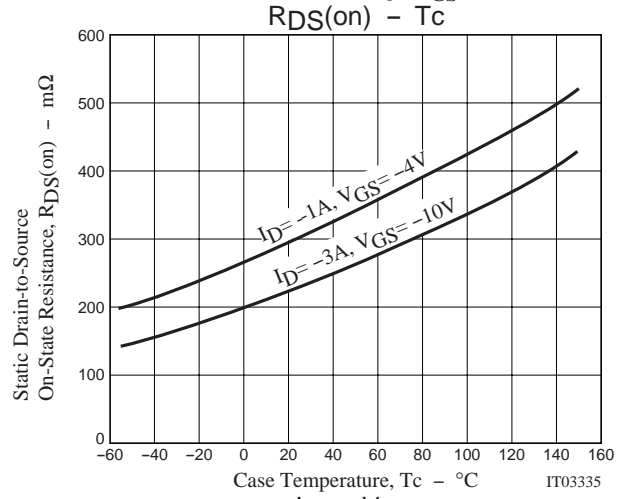
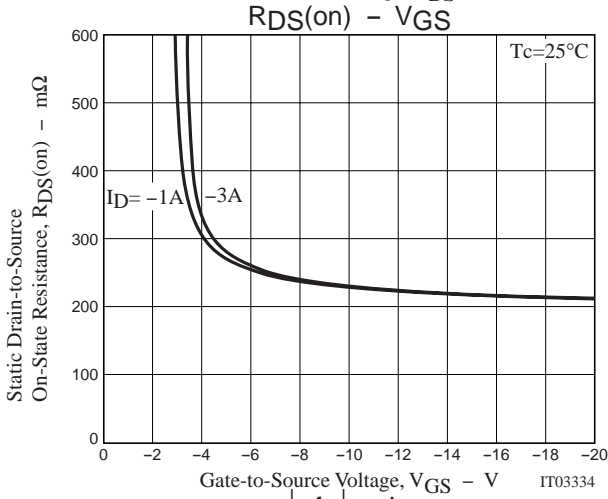
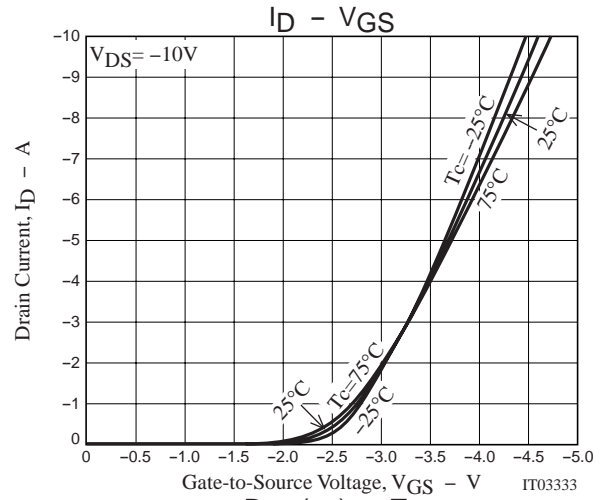
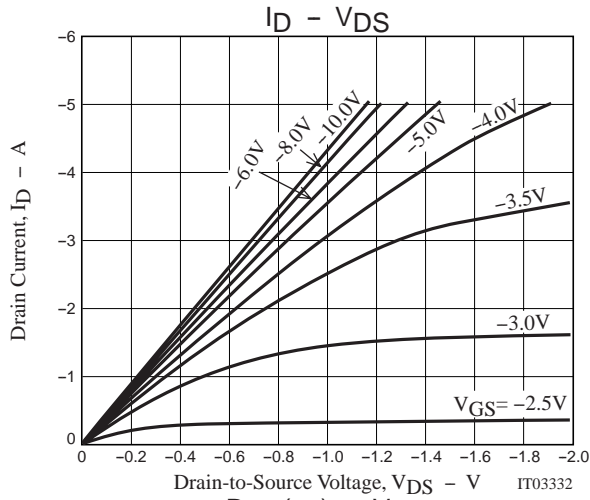
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1\text{mA}$, $V_{GS}=0$	-60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60\text{V}$, $V_{GS}=0$			-10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10\text{V}$, $I_D=-1\text{mA}$	-1.0		-2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10\text{V}$, $I_D=-3\text{A}$	3.2	4.5		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-3\text{A}$, $V_{GS}=-10\text{V}$		225	295	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=-1\text{A}$, $V_{GS}=-4\text{V}$		305	425	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-20\text{V}$, $f=1\text{MHz}$		350		pF
Output Capacitance	C_{oss}	$V_{DS}=-20\text{V}$, $f=1\text{MHz}$		90		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=-20\text{V}$, $f=1\text{MHz}$		25		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		8		ns
Rise Time	t_r	See specified Test Circuit		15		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		37		ns
Fall Time	t_f	See specified Test Circuit		28		ns
Total Gate Charge	Q_g	$V_{DS}=-10\text{V}$, $V_{GS}=-10\text{V}$, $I_D=-5\text{A}$		12		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=-10\text{V}$, $V_{GS}=-10\text{V}$, $I_D=-5\text{A}$		1.7		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=-10\text{V}$, $V_{GS}=-10\text{V}$, $I_D=-5\text{A}$		2.9		nC
Diode Forward Voltage	V_{SD}	$I_S=-5\text{A}$, $V_{GS}=0$	-0.9		-1.2	V

Marking : J594

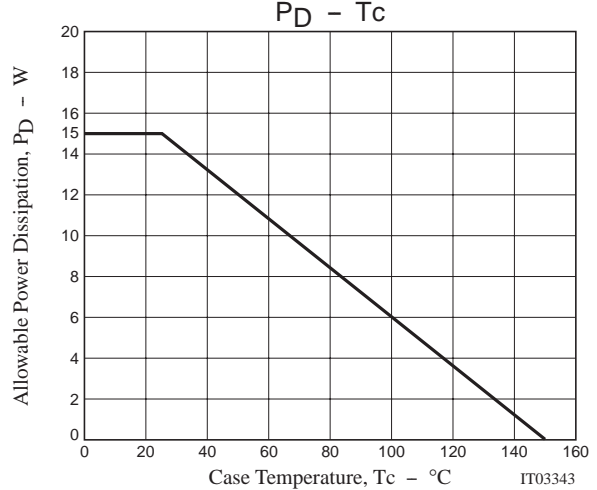
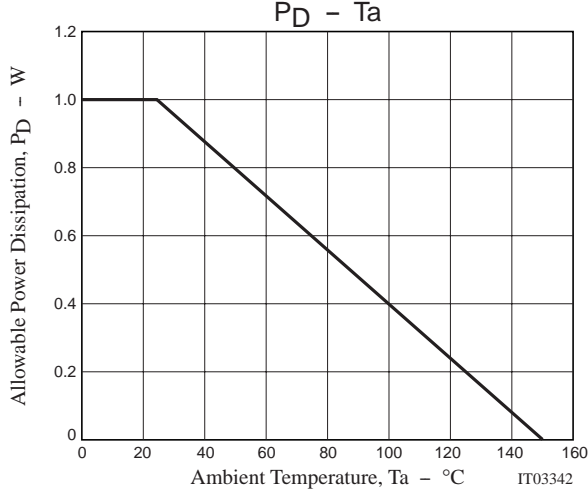
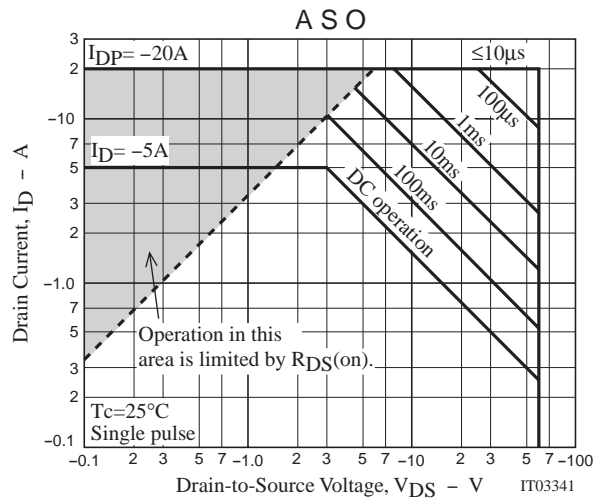
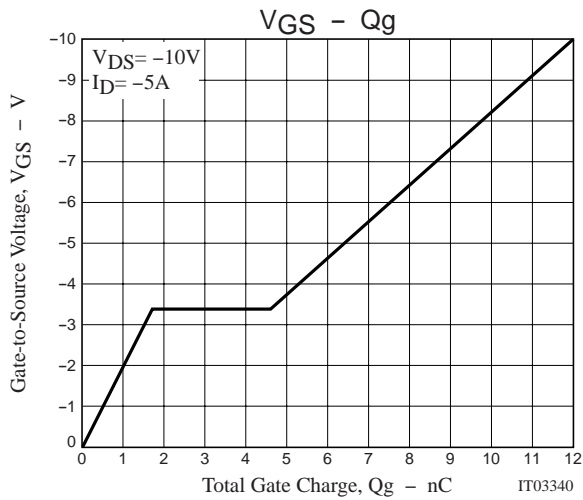
Switching Time Test Circuit



2SJ594



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